

Balancing equations, Reaction types/rates, endothermic and exothermic reactions REVIEW

Balance the follow and state the type of reaction:

- 1) $\text{Na}_3\text{PO}_4 + 3 \text{KOH} \rightarrow 3 \text{NaOH} + \text{K}_3\text{PO}_4$ Reaction Type D.R.
- 2) $\text{MgF}_2 + \text{Li}_2\text{CO}_3 \rightarrow \text{MgCO}_3 + 2 \text{LiF}$ Reaction Type D.R.
- 3) $\text{P}_4 + 3 \text{O}_2 \rightarrow 2 \text{P}_2\text{O}_3$ Reaction Type SYNTHESIS
- 4) $2 \text{RbNO}_3 + \text{BeF}_2 \rightarrow \text{Be}(\text{NO}_3)_2 + 2 \text{RbF}$ Reaction Type D.R.
- 5) $2 \text{AgNO}_3 + \text{Cu} \rightarrow \text{Cu}(\text{NO}_3)_2 + 2 \text{Ag}$ Reaction Type S.R.
- 6) $\text{CF}_4 + 2 \text{Br}_2 \rightarrow \text{CBr}_4 + 2 \text{F}_2$ Reaction Type S.R.
- 7) $2 \text{HCN} + \text{CuSO}_4 \rightarrow \text{H}_2\text{SO}_4 + \text{Cu}(\text{CN})_2$ Reaction Type D.R.
- 8) $\text{GaF}_3 + 3 \text{Cs} \rightarrow 3 \text{CsF} + \text{Ga}$ Reaction Type S.R.
- 9) BALANCED $\text{BaS} + \text{PtF}_2 \rightarrow \text{BaF}_2 + \text{PtS}$ Reaction Type D.R.
- 10) $\text{N}_2 + 3 \text{H}_2 \rightarrow 2 \text{NH}_3$ Reaction Type SYNTHESIS
- 11) $2 \text{NaF} + \text{Br}_2 \rightarrow 2 \text{NaBr} + \text{F}_2$ Reaction Type S.R.
- 12) $\text{Pb}(\text{OH})_2 + 2 \text{HCl} \rightarrow 2 \text{H}_2\text{O} + \text{PbCl}_2$ Reaction Type D.R.
- 13) $2 \text{AlBr}_3 + 3 \text{K}_2\text{SO}_4 \rightarrow 6 \text{KBr} + \text{Al}_2(\text{SO}_4)_3$ Reaction Type D.R.
- 14) $\text{CH}_4 + 2 \text{O}_2 \rightarrow \text{CO}_2 + 2 \text{H}_2\text{O}$ Reaction Type COMBUSTION ← DO NOT DO!
- 15) $2 \text{Na}_3\text{PO}_4 + 3 \text{CaCl}_2 \rightarrow 6 \text{NaCl} + \text{Ca}_3(\text{PO}_4)_2$ Reaction Type D.R.
- 16) $2 \text{K} + \text{Cl}_2 \rightarrow 2 \text{KCl}$ Reaction Type SYNTHESIS
- 17) $2 \text{Al} + 6 \text{HCl} \rightarrow 3 \text{H}_2 + 2 \text{AlCl}_3$ Reaction Type S.R.
- 18) $\text{N}_2 + 3 \text{F}_2 \rightarrow 2 \text{NF}_3$ Reaction Type SYNTHESIS
- 19) $\text{SO}_2 + 2 \text{Li}_2\text{Se} \rightarrow \text{SSe}_2 + 2 \text{Li}_2\text{O}$ Reaction Type D.R.
- 20) $2 \text{NH}_3 + \text{H}_2\text{SO}_4 \rightarrow (\text{NH}_4)_2\text{SO}_4$ Reaction Type SYNTHESIS

21) Name 4 things that affect the rate of reaction & give an example of where/how we saw this in class:

1. CATALYST
2. SURFACE AREA
3. CONCENTRATION
4. TEMPERATURE

22) What direction would heat be moving in the following types of reaction (into the reaction or into the surroundings)

Endothermic: HEAT MOVES FROM THE SURROUNDINGS TO THE SYSTEM

Exothermic: HEAT MOVES FROM THE SYSTEM TO THE SURROUNDINGS

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23) What is needed for a successful collision?

ENOUGH ENERGY - MINIMUM AMOUNT IS CALLED ACTIVATION ENERGY

24) What does the law of conservation of energy state?

ENERGY CANNOT BE CREATED OR DESTROYED

25) Energy a body has because it is in motion is defined as KINETIC energy

26) Energy is ~~released~~ ^{ABSORBED} when bonds break

27) Energy is ~~absorbed~~ ^{RELEASED} when bonds form

28) When the energy released from the formation of bonds is greater than the energy required to break bonds the reaction is considered:

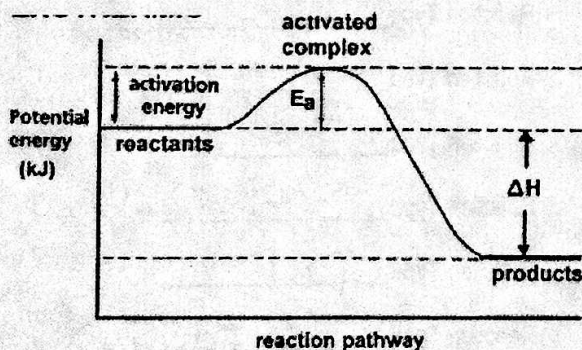
EXOTHERMIC

29) When the energy released from the formation of bonds is less than the energy required to break bonds the reaction is considered:

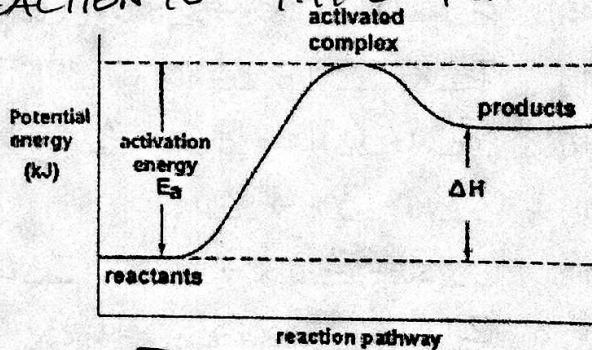
ENDOTHERMIC

30) What is activation energy and what can lower it??

THE MINIMUM AMOUNT OF ENERGY REQUIRED FOR A REACTION TO TAKE PLACE



EXOTHERMIC



ENDOTHERMIC

31) Label the above diagrams as either endothermic or exothermic

32) Give an example of each type of reaction: / PROCESS

Endothermic → ALKA SELTZER AND WATER / TOUCHING A GLASS OF ICE WATER
Exothermic → $\text{CaCl}_2 + \text{H}_2\text{O}$ / TOUCHING A WARM CUP OF COFFEE